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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,197	12/16/2004	Yasuo Nakamura	1217-045623	5218
<div><div>7590</div><div>09/28/2007</div><div>Kent E Baldauf 700 Koppers Building 436 Seventh Avenue Pittsburgh, PA 15219-1818</div></div>				
			<div>EXAMINER</div> <div>SEIFU, LESSANEWÖRK T</div>	
			<div>ART UNIT</div> <div>1743</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE</div> <div>09/28/2007</div>	<div>DELIVERY MODE</div> <div>PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,197	Applicant(s) NAKAMURA ET AL.	
	Examiner Lessanework T. Seifu	Art Unit 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>07/13/05</u> | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. **The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided.** The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Jewett (US 4265,859).

Regarding claims 1 and 4, Jewett disclose a silicon production reactor comprising a reaction vessel (34) and heating means (50), the reaction vessel comprising a vertically extending wall (38) and a space (40) surrounded by the wall, the heating means being capable of heating at least a part, including lower end portion,

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of the wall's surface facing the space to a temperature including above the melting point of silicon (see col. 4, lines 47-50), the silicon production reactor being adapted to flow raw gas for silicon deposition from an upper part of the space of the reaction vessel toward a lower part thereof. The reference further discloses that the space of the reaction vessel is of slit form in cross-sectional view, as shown in figure 2 and 3 in the disclosure, to provide a high deposition surface area to volume ratio (see Fig. 2 and col. 2, lines 40-57). Jewett further discloses that the vertically extending wall is constituted of a material capable of being heated by high-frequency application (see col. 3, lines 50-57). The reference further discloses coil arranged around the vertically extending wall so as to enable heating the vertically extending wall (see col. 4, lines 4-11).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 2, 3, and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jewett (US 4,265,859).

Regarding claims 2, 3, and 5, Jewett as applied to claim 1 above meets all of the limitations of claim 1. Jewett further discloses that a multi-wall configuration is provided in the reaction chamber of his invention in order to maximize interior surface area on which silicon is deposited. The reference further discloses that because of the increase in the ratio of the reaction surface to the gas low cross-sectional area, increased yield of silicon can be obtained (see col. 6, lines 5-15). Jewett however does not disclose a length to width ratio of the space of the reaction vessel as claimed. The claimed limitations are unpatentable over the prior art because, it is with in the level of ordinary skill in the art to modify the reaction vessel of Jewett to any configuration including to the claimed length to width ratio for purpose of increasing the yield of silicon. It has been held that a change in configuration or shape of a device is obvious,

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absent persuasive evidence that a particular configuration is significant. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Further, it has been held that change in size and shape is not patently distinct over the prior art absent persuasive evidence that the particular configuration of the claimed invention is significant. See In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

Regarding claims 6 and 7, as shown in claim 1 rejection above, Jewett further discloses that the vertically extending wall is constituted of a material capable of being heated by high-frequency application (see col. 3, lines 50-57). The reference further discloses coil arranged around the vertically extending wall so as to enable heating the vertically extending wall (see col. 4, lines 4-11).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Levin (US 4,737,348) discloses apparatus for making molten silicon.

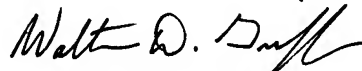
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lessanework T. Seifu whose telephone number is 571-270-3153. The examiner can normally be reached on Mon-Thr 7:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS



WALTER D. GRIFFIN
SUPERVISORY PATENT EXAMINER